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AUTHOR Richardson, William B.
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ABSTRACT

The study was made to determine the earnings of a sample group of Indiana high school vocational program graduates to ascertain the effect hypothesized training has on earnings of high school vocational graduates. The sample was randomly selected from 1972-73 graduates, stratified according to vocational program. Of the 18 independent variables used in the analysis, those found to have any relation to earnings were sex, marital status, year of graduation, job satisfaction, labor union membership, and length of time after graduation before taking a job. Major conclusions were: (1) variables not directly associated with vocational training tend to have a greater influence on the earnings of vocational graduates; (2) socioeconomic status of parents was not a significant influence; and (3) the type of vocational program completed by the graduate did not provide any conclusive relationship with earnings. Appended are: a list of cooperating schools, correspondence, the survey instrument, list of advisory committee and project consultant, and an analysis of nonrespondents. (MF)

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FINAL REPORT

AN ANALYSIS OF FACTORS INFLUENCING THE EARNINGS OF INDIANA HIGH SCHOOL VOCATIONAL GRADUATES

by
William B. Richardson

Department of Education
Purdue University
Lafayette, Indiana 47907

January, 1975

Indiana State Department of Public Instruction

Division of Vocational Education

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ABSTRACT

The Problems and Objectives. The problem studied was the analyzation of relationships between earnings of Indiana high school vocational graduates and selected variables hypothesized to affect those earnings. The objectives were:

1. Determine the earnings of a selected sample of individuals who have completed vocational programs in Indiana high schools.

2. Ascertain the effect that hypothesized socio-economic variables have on earnings.

3. Isolate the net effect that vocational training has on earnings of high school vocational graduates.

Methodology. A random sample of 25 schools that offered at least three vocational programs in 1972 and 1973 was selected. The graduates of these programs were identified and 1,000 were randomly selected by vocational program stratification. A mailed questionnaire was used to obtain data relative to the graduates' post high school employment patterns.

Multiple Regression Analysis was used to statistically identify the relationships between earnings of the graduates and the variables hypothesized to affect those earnings. The dependent variable was the present earnings of the vocational graduates expressed in hourly earnings. The independent variables were: (1) Sex, (2) Completion of a vocational program, (3) Marital status, (4) Number of workers in place of employment, (5) High school cooperative training, (6) Migration, (7) Part-time employment while in school, (8) Size of city where employed, (9) Number of months required to obtain first full-time job, (10) Number of full-time jobs held since leaving school, (11) Physical handicaps, (12) Additional job training, (13) Satisfaction with vocational training, (14) Educational level of mother, (15) Employment status of mother, (16) Educational level of father, (17) Employment status of father, (18) Year of completion of vocational program.

Results and Conclusions. The variables that had a significant relationship to earnings were: (1) Sex, (2) Marital status, (3) Year of graduation, (4) Highly liked present job, (5) Labor union membership, and (6) Length of time after graduation before a job was taken. The other variables used in the regression analysis were insignificant.

The major conclusions were: (1) Variables not directly associated with earnings tend to have a greater influence on the earnings of vocational graduates, (2) Socio-economic status of parents as measured in this study was not a significant influence on the earnings of vocational graduates, (3) The type of vocational program area completed by the graduate did not provide conclusive relationships with earnings.

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INTRODUCTION

Background

The Vocational Education Acts of 1963 and the Vocational Education Amendments of 1968 explicitly state that vocational education programs will be evaluated. In like manner, all governmental expenditures are coming under closer scrutiny from the cost-effectiveness criterion, and other similar techniques aimed at determining program effectiveness.

Performance of a product in the consumer market is a critical concern of all parts of the American Industrial Complex. This same type of concern is of importance to the product of our educational institutions. Vocational education, as an integral part of the total educational establishment, but one that has received additional funding, is pressed to assess the performance of its product even beyond the normal expectations of other segments of education.

Product performance in industry is often assessed in terms of sales, usefulness, and meeting a need. It could be summarized that the ability of the product to be effective in meeting a need is one way to assess a product performance. In like manner, vocational education must determine product performance, i.e., How does the product (the vocational education graduate) perform in the labor market?

One index of labor market performance relates to the earning power of vocational graduates as expressed in hourly earnings.

The association of education and income has been discussed in numerous studies. Additional research has been completed on the effect of vocational training on earnings of vocational graduates. (See attached bibliography.) Questions still exist that relate to the analysis of earnings of vocational graduates and what variables influence those earnings. This study is designed to provide an analysis of the relationships between the earnings of vocational graduates and a group of variables that are hypothesized to influence those earnings.

Related Studies

Analysis of earnings of vocational graduates and factors that influence the earnings of these graduates has been completed as a spin off or as a component of more comprehensive studies. A review of this literature has led to a development of and the need for this study.

One of the most notable studies conducted was by Kaufman.[1] The purpose of this study was to compare the performance amoung senior high school graduates in the labor market. One of the measures of performance was average monthly earnings over a six year period. The variables hypothesized to affect those earnings were type of high school curriculum, labor market, sex, IQ, race, marital status, and further education.

The results of this analysis revealed several significant variables; males earned more than females, whites earned more than other races, married graduates earned more than unmarrieds, graduates in vocational curriculums earned more than those in academic or general curriculums. There were no significant differences found due to further education and labor market location.

This study pointed out that certain variables are directly related to earnings and should be described in analyzing the earnings of vocational graduates.

Few of the evaluative studies have adequate control groups, and contradictory findings occur among studies. For example, a number of studies reported relatively high ratios of training-related job placement, ranging from 58-64 percent of trade graduates to 82.9 percent of technician graduates and 60 percent of New Jersey vocational graduates still in their training occupation ten years after graduation.[2] On the other hand, Eninger. in a survey of trade and industry graduates found that the majority of graduates do not enter the trade for which they were trained.[3]

Regardless of the findings, it is not clear to the author that training-related job ratios are meaningful with respect to evaluation in a dynamic labor market. Particularly, when predictions are that workers will change jobs several times during their working lives as the result of technological advance.

One of the most meaningful statistics would be to evaluate earnings of vocational graduates. Note, however, that adequate statistical control for other factors that affect earnings would be a necessary prerequisite for such a comparison. Few studies of salary differentials exist, and the results of some must be interpretated with caution and have limited applicability because of their small sample size, lack of adequate control measures, and limited vocational occupations.

Carol and Ihnen, in quantifying the costs and benefits of post-secondary technical training found the rate of return to be about 21 percent.[4] Ribich concludes that occupationally oriented training for the disadvantaged has produced a higher rate of return than more general educational programs.[5] Taussig in an analysis of New York City vocational training in secondary schools concluded that vocational school graduates do not command a significant premium in the labor market.[6]

Likewise, Taussig found little wage difference in hourly earnings of graduates of vocational schools who were employed in training related work

and those otherwise employed ($1.48 versus $1.36 for males and $1.36 for females of both groups). Note, however, that there was no control for I.Q. or academic achievement among students.

Corazzini, in a study of starting wages paid vocational high school and regular high school graduates who were hired as machine operators in Worcester, found wage differentials from $.04 per hour to $.25 per hour.[7] The analysis also showed marked wage differences among various size of firm categories. The larger the number of employees per firm, the larger the wage difference.

Kaufman and Lewis, in an analysis based on three selected cities in Pennsylvania, found no significant difference in the starting pay among graduates of vocational, general and academic curricula.[8] In a multi-variate analysis to ascertain the net relationship between curriculum and earnings, only the general curriculum was significantly different from the academic curriculum. Other variables included by Kaufman and Lewis in the multiple regression model were: (1) city size, (2) IQ, (3) sex, (4) race, (5) first job occupation, (6) whether students took post-high school training and (7) training relatedness of job. Only 10 percent of the total variation among employee salaries was explained by this regression model. Hence, the model has little if any important predictive powers as an explanatory model of employee salaries.

Kaufman et al. in an investigation that encompassed Baltimore, Maryland; Cleveland, Ohio; Philadelphia, Pennsylvania; Allentown, Pennsylvania; Atlantic City, New Jersey; and Findley, Ohio; likewise found no significant salary differentials associated with the type of curriculum the employees took while in school. The authors conclude that while no pay-off in the form of a wage increment was immediately obtained by recipients of high school level skill-training, subsequent advantages in the form of pay increases on the first job may accrue to the vocationally trained graduates -- particularly those having lower IQ's -- when compared to those graduates, in the same IQ range, who did not receive skill training. This particular research study did not utilize multivariate analysis.

The Problem and Objectives

The primary problem of this study was to quantify the relationships between earnings of Indiana vocational graduates and selected variables hypothesized to affect those earnings. More specifically, multiple regression analysis was used to isolate the effect that these hypothesized variables have on earnings of these graduates.

The objectives of the study were to:

(1) Determine the earnings of a selected sample of individuals who have completed vocational programs in Indiana high schools.

(2) Ascertain the effect that hypothesized socio-economic variables have on earnings.

(3) Isolate the net effect that vocational training has on earnings of high school vocational graduates.

Methodology

A random sample of 25 schools was selected for the study. (See Appendix A) Schools eligible for the study must have offered three vocational program areas during the 1972 and 1973 school years. The State Department of Public Instruction Vocational Division records were utilized to verify this restriction. A total of 96 schools was identified and was the accessible population for the study.

The president of the Indiana Public School Superintendents' Association was consulted in reference and agreed to endorse the study. His letter of endorsement was used to secure the cooperation of the schools randomly selected for the study. (See Appendix B)

Each school was visited by the investigator to obtain the names, addresses, and other basic descriptive data relative to 1972 and 1973 vocational graduates. A total of 2909 graduates was identified from which 1000 were selected by a stratified random procedure to insure distribution representative of the total population. Six vocational program areas were sampled: Agriculture, Business Education, Distributive Education, Health Occupations, Home Economics, and Trade and Industrial Education.

A follow-up instrument was developed and field tested. A copy of the instrument and all letters used to secure data are in Appendix B. The instrument with appropriate letters was mailed to each graduate identified in the sample. A post card follow-up was mailed after two weeks. A second instrument was sent after four weeks, and a second post card after six weeks. A third instrument was mailed after eight weeks. A usable return rate of 68 percent was obtained. Table 1 presents a detailed summary of the random sample and the return rates.

Table 1. Random Stratification of the Study Sample and Associated Rates of Return

Program Area	Random Sample (N)	Random Sample %	Usable Return (N)	Usable Return %
Agriculture	61	6.1	50	82
Business Education	331	33.1	246	74
Distributive Education	190	19.0	134	71
Health	26	2.6	16	62
Home Economics	41	4.1	28	68
Trade and Industrial	351	35.1	206	59
TOTAL	1000	100%	680	68%

An advisory committee for the project was formed. The committee consisted of a representative of the Vocational Division of the State Department of Public Instruction, a representative of the school superintendents in the study, a vocational director of one of the schools involved in the study, a representative of the vocational education staff at Purdue and also a representative of the Purdue Educational Research Center (PERC). A personnel consultant was also selected to advise in the analysis of the data. Appendix C identifies the persons serving as the advisory committee and consultant.

Analysis

Multiple regression analysis was used to statistically identify the relationships between earnings of the 1972 and 1973 vocational graduates and a series of variables that were hypothesized to affect those earnings.

The following variables are hypothesized to influence the employee earnings and are specified as independent variables in the regression models.

1. Sex
2. Completion of a vocational program
3. Marital status
4. Number of workers in place of employment
5. High school cooperative training
6. Migration
7. Part-time employment while in school
8. Size of city where employed
9. Number of months required to obtain first full-time job
10. Number of full-time jobs held since leaving school
11. Physical handicaps
12. Additional job training
13. Satisfaction with vocational training
14. Educational level of mother
15. Employment status of mother
16. Educational level of father
17. Employment status of father
18. Year of completion of vocational program

The dependent variable in this regression model was earnings of the vocational graduate expressed in hourly rates.

The regression model can be illustrated as follows:

$$\bar{Y} = a + Xi\ bi + \ldots\ldots\ldots\ldots\ Xnbn$$

Where:

$\bar{Y}$ = Dependent variable expressed in hourly earnings

a = constant

Xi....Xn = independent variables

bi....bn = regression coefficients

Data in the tables are regression coefficients produced by the multiple regression analysis. Each regression coefficient is expressed in dollars per hour. All dicotomous variables were treated as "dummy" variables. One of the dicotomies within each dicotomous variable was entered into the intercept of the regression model (the coefficient was set at 0) and the remaining dicotomies were interpreted as deviations from that dicotomy. Using the male-female variable as an example, the female responses were entered into the intercept and the male regression coefficients were interpreted as deviations (in dollars per hour) from the females. Thus, males in this study earned $.51 per hour more than females. (See Table 2) Continuous variables such as fathers educational level (expressed in years of formal schooling) were entered into the regression model in continuous variable form. The results are interpreted by determining the unit used to express each variable, and the regression coefficient is dollars per hour expressed as deviations per unit. Thus, for fathers educational level, each additional year of formal schooling resulted in the graduate earning approximately $.01 per hour more. (See Table 2)

A five percent stratified random sample of non-respondents was identified and contacted by telephone. Appendix D contains a comparison of the non-respondent sample and the respondent sample.

FINDINGS

The results of this study will be presented in three segments. The first segment will examine the results of the regression analysis when initial earnings was the dependent variable. The second segment will examine the analysis of earnings six months after graduation. The final segment will examine the analysis of present earnings of the graduates.

For ease in readability the data in each section will be divided into four categories: (1) Socio-economic variables, (2) Vocational program variables, (3) Job variables, and (4) Summary. Each table presents a segmental portion of the regression analysis. At the bottom of each table information relative to the regression model is presented.

Initial Earnings

There were 680 usable returns of the questionnaire as previously reported. An examination of these cases revealed that only 514 of the 680 had reported initial earnings. The analysis of the graduates' initial earnings includes these 514 cases.

Socio-economic Variables.

Table 2 presents a descriptive breakdown of the variables studied and classified as socio-economic.

Males and Females. Males comprised 48% of the 514 cases analyzed in this phase of the study. Table 2 reveals the males earned $.51 more per hour than the females when initial earnings were analyzed, which was significant.

Educational Level of Parents. The analysis did not support the hypothesis that the quantity of education the vocational graduates' parents had obtained would influence the earnings of the vocational graduates. These variables were included as indices for socio-economic status.

Marital Status. It was hypothesized that marital status would be an influential factor on earnings. Specifically, married graduates would earn more than non-married graduates. Twenty-two percent of the 514 cases reported that they were married. The analysis reveals that married students earned more (.03/hour) than non-married students, however, this was not significant.

Parents' Employment Status. The data in Table 2 reveal that 86% of the fathers and 43% of the mothers of the 514 vocational graduates were working full-time. Neither of these two variables proved significant in terms of explaining variations in earnings.

Physical Handicaps. Only 2.5% of the graduates reported they had physical handicaps which would prohibit them from taking certain types of vocational jobs. This variable proved insignificant in explaining earnings differentials.

Table 2. Regression Results of Selected Variables on Initial Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Socio-Economic Variables				
Males	48	.51	.10	5.10**
Females	52	---	---	----
Father's Educational Level	10.3	.01	.01	1.00
Mother's Educational Level	10.7	-.003	.01	-.30
Married	22	.08	.13	.62
Not Married	78	---	---	----
Father's Employment				
Employed Full-Time	86	.02	.10	.20
Not Employed Full-Time	14	---	---	----
Mother's Employment				
Employed Full-Time	43	-.015	.07	.21
Not Employed Full-Time	57	---	---	----
Physical Handicaps	2.5	.20	.21	.95

N = 514
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .49
R Square = .24
F = 6.03
Constant = 2.58
$\bar{X}$ = Mean (Expressed as percentages except educational levels which are in years of formal schooling)

Vocational Program Variables

Table 3 presents the summary of the regression analysis of the variables defined as program variables.

Vocational Program Areas

Five vocational program areas were analyzed. T & I was randomly selected and its coefficient set to zero. Then the other areas can be interpreted as deviations from T & I. All program areas except Agriculture earned less than T & I. However, only the Business Education area earned significantly less. The other areas' differences could happen due to chance. The Business Education area was 94% females, and recalling the highly significant differences in male-female comparison will help to explain much of this significant difference.

Table 3. Regression Results of Selected Variables on Initial Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Vocational Program				
Agriculture	8%	.09	.13	.69
Business Education	35%	-.26	.11	-2.36*
Distributive Education	22%	-.165	.10	-1.65
Health Occupations	3%	-.42	.22	-1.91
Home Economics	3%	-.18	.21	-.86
Trade & Industrial	30%	---	---	---
Part-Time Job	34%	-.03	.07	.43
Additional Training	18%	.05	.08	.63
Satisfied with Vocational Training	81%	.134	.089	1.5
Year of Graduation				
1972	50%	-.09	.07	-1.29
1973	50%	---	---	---

N = 514
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value
Multiple Correlation = .49
R Square = .24
F = 6.03
Constant = 2.58
$\bar{X}$ = Mean (Expressed as percentages)

Part-Time Job. Thirty-four percent of the graduates indicated that they had part-time jobs while in high school other than cooperative training. The regression results failed to support the premise that previous part-time work experience could pay off immediately in extra earnings when employed full-time after graduation.

Additional Vocational Training. Eighteen percent of the graduates had some form of additional training after graduating from high school. This variable proved insignificant as those graduates who obtained additional training did not earn significantly more than those who did not receive additional training.

Satisfaction with Vocational Training. A sizeable percentage, 81 percent, of the graduates expressed that they were satisfied with their vocational training. However, this variable was insignificant. In essence, even though there was widespread satisfaction with their vocational training, it did not cause a significant effect on earnings.

Year of Graduation. Of the 514 cases analyzed in this segment, 50% were 1972 and 50% were 1973 graduates. The hypothesis that 1972 graduates would earn more was not accepted.

Job Variables

A set of four variables was analyzed in reference to the job of each graduate. Table 4 presents a summary of the regression analysis of these four variables.

Table 4. Regression Results of Selected Variables on Initial Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Job Relatedness				
Employed in Occupation Trained	35%	-.02	.10	-.20
Employed in Related Occupation	24%	.03	.10	.30
Non-Related	41%	---	---	---
Number of Full-Time Jobs				
1	58%	---	---	---
2	30%	-.28	.07	-4.00**
3-5	10%	-.37	.11	-3.36**
Months Before First Full-Time Job	2.54	.004	.01	.40
Sought Full-Time Job Upon Graduation	88%	-.08	.11	-.73

N = 514
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .49
R Square = .24
F = 6.03
Constant = 2.58
$\bar{X}$ = Mean (Expressed as percentages except months before first job which is expressed in months.)

Job Relatedness. Each graduate was asked to indicate the degree to which his initial job was related to his vocational training. Of the 514 cases in this segment, 34% said that they were working in the area for which they were trained, 24% said that they were working in a related area. When these variables were entered into the regression analysis and compared with those who were working in non-related jobs there were no significant differences in relation to earnings. Therefore, it appears that job relatedness does not influence earnings.

Number of Full-Time Jobs. Table 4 reveals that 58% of the graduates had only one full-time job since graduation while 30% said they had two (2) full-time jobs. Ten percent reported that they had held 3-5 full-time jobs. As might be expected those who reported more than one full-time job earned significantly less than the graduates who had held one full-time job.

Months Before First Full-Time Job. On the average, the graduates moved into the labor market full-time in 2½ months. However, the regression results did not reveal any significant earnings differential in relation to length of time it took to get into the labor market.

Sought Full-Time Employment. Each graduate was asked if he sought full-time employment upon graduation. Eighty-eight percent of the cases reported that they sought a full-time job. The regression results failed to identify any significant relationship between seeking a full-time job and earnings.

Summary

This regression model, an analysis of initial earnings of vocational graduates, explained 24 percent of the variance. The results of the regression analysis revealed that the variables in this model did not provide a major influence to the earnings of the vocational graduates.

The significant variables were found: (1) males earned significantly more than females, (2) a graduate who reported more than one full-time job earned significantly less than the graduates who had held one full-time job, and (3) Business and office graduates earned significantly less per hour than Trade and Industrial graduates.

Six Months Earnings

The second segment of this report concerns an analysis of the earnings of the vocational graduates six months after graduation. The data presented in this segment will be styled after the previous segment. There were 411 cases of the 680 returned who reported earnings six months after graduation.

Socio-Economic Variables

Seven variables were analyzed in this segment and classified as socio-economic. Table 5 presents a summary of the regression and is the basis for the following paragraphs.

Sex. As with the previous segment the 411 cases in this study were 50 percent male and 50 percent female. Also, the males continue to earn more, $ .69 per hour, which is significantly more than the females.

Educational Level of Parents. The educational levels of the parents were 10.3 and 10.6 years respectively for the father and mother. The educational level of the father proved insignificant as being influential on the earnings of the graduate. However, the educational level of the mother did provide a proxy for socio-economic level. Therefore, based on this analysis, the educational level of the mother is having some influence.

Marital Status. There were 23 percent of the 411 individuals who reported that they were married. However, the effect of marital status on six months earnings proved insignificant.

Table 5. Regression Results of Selected Variables on Six Months Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Socio-economic Variables				
Males	50%	.69	.12	5.86**
Females	50%	—	—	—
Father's Educational Level	10.3	-.014	.013	-1.08
Mother's Educational Level	10.6	.032	.015	2.17*
Married	23%	.22	.15	1.51
Not Married	77%	—	—	—
Father's Employment				
Employed Full-Time	86%	.03	.12	.29
Not Employed Full-Time	14%	—	—	—
Mother's Employment				
Employed Full-Time	43%	.02	.08	.30
Not Employed Full-Time	57%	—	—	—
Physical Handicaps	3.0%	-.31	.23	-1.32

N = 411
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .61
R square = .37
F = 8.99
Constant = 2.00
$\bar{X}$ = Mean (Expressed as percentages except educational levels which are in years of formal schooling)

Employment Status of Parents. The employment status of the parents proved insignificant as an influencing factor affecting vocational graduates' earnings six months after graduation. Eighty-six percent of the fathers and 43 percent of the mothers were employed full-time.

Physical Handicaps. Three percent of the sample reported that they were physically handicapped and that this would prevent them from making certain types of jobs. However, this variable proved insignificant.

Vocational Program Variables

Table 6 contains the regression summary of the variables defined as Vocational Program Variables.

Table 6. Regression Results of Selected Variables on Six Months Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Vocational Program				
Agriculture	7%	.32	.16	2.03*
Business Education	32%	-.06	.14	- .46
Distributive Education	23%	-.21	.12	-1.79
Health Occupations	3%	-.52	.26	-2.04*
Home Economics	3%	-.06	.25	- .25
Trade and Industrial	32%	---	---	----
Part-Time Job	35%	-.11	.09	-1.29
Additional Training	15%	.19	.11	1.70
Satisfied with Vocational Training	82%	.004	.102	.04
Year of Graduation				
1972	49%	-.09	.08	-1.14
1973	51%	---	---	----

N = 411
* - Significant at .05 level
** - Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value
Multiple Correlation = .61
R square = .37
F = 8.99
Constant = 2.00
$\bar{X}$ = Mean (Expressed as percentages)

Vocational Program Areas. An examination of Table 6 reveals that two program areas earned significantly different earnings than did T & I graduates. Remember that T & I graduates were held constant and other variables are interpreted as deviations from the T & I graduates. The Agriculture graduates earned $.32 per hour more and the Health Occupation graduates earned $.52 per hour less than the T & I. This is a contrast to the previous segment where only the Business Education graduates earned significantly different earnings.

Part-Time Job. Graduates who reported that they had a part-time job while in school actually earned $.11 per hour less than those who did not. However, this difference was not significant.

Additional Training. Of the 411 cases in this segment 15 percent reported that they did obtain additional training upon graduation from high school. However, this variable was insignificant in its influence upon earnings of the graduates.

Satisfied with Vocational Training. Over 80 percent of the 411 cases reported that they were satisfied with their vocational training. However, it does not appear that satisfaction with vocational training has a relationship with earnings, as this variable was insignificant in its influence on six months earnings of vocational graduates.

Year of Graduation. The 411 cases were 50% in 1972 and 50% in 1973 graduates. The 1972 graduates actually earned less per hour than did the 1973 graduates. However, this difference was insignificant.

Job Variables

Four variables were analyzed within this section. Table 7 contains the regression summary.

Table 7. Regression Results of Selected Variables on Six Months Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Job Relatedness				
Employed in Occupation Trained	34%	.13	.09	1.33
Employed in Related Occupation	24%	.13	.10	1.32
Non-Related	42%	—	—	—
Number of Full-Time Jobs				
1	57%	—	—	—
2	30%	-.04	.09	-4.26**
3-5	13%	-.07	.13	- .55
Months Before First Full-Time Job	1.99	-.03	.02	-1.92
Sought Full-Time Job Upon Graduation	91%	.04	.14	.28

N = 411
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .61
R square = .37
F = 8.99
Constant = 2.00
$\bar{X}$ = Mean (Expressed as percentages except months before first full-time job which is expressed in months)

Job Relatedness. Each graduate was asked about the relatedness of his job to the vocational training received in high school. Thirty-four percent responded that they were employed in the occupation for which they were trained and 24 percent said that they were employed in a related job. The hypothesis that persons employed in a related occupation would earn more than a person employed in a non-related occupation did not prove true. There were no significant relationships established between the related groups and the non-related graduates when six months earnings was the dependent variable.

Number of Full-Time Jobs. Fifty-seven percent of the 411 cases reported that they had held only one full-time job while 30 percent reported that they had held two full-time jobs and 13 percent had held three or more full-time jobs. The premise surrounding this variable was a graduate would change jobs for financial improvement. However, just the opposite was found. Those graduates who held two jobs earned significantly less than those who held only one job. On the other hand, those who held three or more jobs did not earn significantly less.

Months Before First Full-Time Job. On the average it took the 411 cases 1.99 months to get a job. This was a reduction from the initial group which took 2½ months. Apparently, the graduates who are working six months after graduation entered the labor market sooner than their counterparts who were working initially. This variable, however, proved insignificant in attempting to explain difference in earnings.

Sought Full-Time Job. Ninety-one percent of the graduates sought a full-time job upon graduation. However, there was no evidence to suggest that a person who sought a full-time job would earn more than the graduate who did not seek a full-time job.

Summary

The model explained 37 percent of the variance. It appears that the variables included in the total research study are beginning to have an influence on the earnings of the graduates. If you recall, only 24 percent of the variance was explained in the regression model that analyzed initial earnings.

In reference to significant variables, the similar patterns established in the previous segment continued in this analysis. Males earned significantly more than females. In the vocational program phase Agriculture and Health Occupations were found to differ significantly from the T & I area, with Agriculture earning significantly more and Health earning significantly less.

The job related variables also followed a similar pattern, as the only significant variable was the number of full-time jobs. The persons who had held two full-time jobs earned significantly less than the persons who held only one full-time job.

Present Earnings

For purposes of discussion the presentation of the data relative to present earnings will be divided into four categories: (1) Socio-economic variables, (2) Vocational program variables, (3) Job variables, and (4) Summary. Tables 6-10 present the segmental portions of the regression analysis. At the bottom of each table the data relative to the regression model is presented.

Socio-economic Variables

Table 8 contains the regression results for the variable hypothesized to provide an index of socio-economic status. There were five variables in this category: (1) Male or female, (2) Educational level of parents, (3) Marital status, (4) Employment status of parents, and (5) Physical handicaps.

Table 8. Regression Results of Selected Variables on Present Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Socio-Economic Variables				
Males	47%	.71	.12	5.91**
Females	53%	---	---	---
Father's Educational Level	10.3	-.01	.01	-1.00
Mother's Educational Level	10.6	.017	.015	1.13
Married	69%	.20	.10	2.00*
Not Married	31%	---	---	---
Father's Employment				
Employed Full-Time	96%	-.04	.12	.33
Not Employed Full-Time		---	---	---
Mother's Employment				
Employed Full-Time	43%	.04	.08	.50
Not Employed Full-Time		---	---	---
Physical Handicaps	2%	.09	.29	.31

N = 437
* = Significant at .05 level
** = Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .62
R square = .38
F = 8.92
Constant = 2.12
$\bar{X}$ = Mean (Expressed as percentages except educational levels which are in years of formal schooling)

Sex. Males were hypothesized to earn significantly more than females. This analysis was composed of 47 percent males; 53 percent females. An examination of Table 8 reveals that males earned $ .71 more per hour than females. This was significant at the .01 level, and the hypothesis was accepted.

Educational Level of Parents. The educational level of the fathers of the graduates in this study averaged 10.3 years of formal schooling; the educational level of the mothers in this study averaged 10.6 years. Table 8's regression coefficients reveal very little evidence that the educational level of the parents influences earnings.

Marital Status. The regression analysis revealed that marital status affects the earnings of the vocational graduates in this study. Twenty-one percent were married, 10 percent were not married. Students who were married earned $ .20 per hour more than those who were not married. The hypothesis that a married student would earn more than single or other non-married students was accepted.

Parents' Employment Status. The regression results did not provide any evidence that the employment status of vocational students' parents had an influence on the earnings of vocational graduates.

Physical Handicaps. Two percent of the sample reported physical handicaps that would affect certain types of vocational training. The regression results of this variable were significant.

Vocational Program Variables

The variables or variable sets identified and analyzed in reference to vocational training were: (1) Type of vocational program, (2) Cooperative vocational training experience, (3) Part-time employment while in high school, (4) Additional post high school vocational training, (5) Satisfaction with vocational training, and (6) Year of graduation. Table 9 presents a summary of the regression analysis.

Table 9. Regression Results of Selected Variables on Present Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools.

Variable	$\bar{X}$	b	s	t
Vocational Program				
Agriculture	7%	-.006	.170	.03
Business Education	37%	-.157	.14	-1.12
Distributive Education	20%	-.36	.13	-2.77**
Health Occupations	2%	-.35	.30	-1.17
Home Economics	3%	-.36	.26	-1.38
Trade & Industrial	31%	----	----	-----
High School Co-op Program	52%	.162	.086	1. 8
Part-Time Job	34%	-.116	.09	1.28
Additional Training	18%	.08	.10	.80
Satisfied with Vocational Training	81%	.19	.11	1.79
Year of Graduation				
1972	48%	.20	.08	2.50*
1973	52%	---	----	-----

N = 437
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .62
R square = .38
F = 8.92
Constant = 2.12
$\bar{X}$ = Mean (Expressed as percentages)

Vocational Program. There were 6 vocational program areas which were analyzed. In comparison among the areas the regression coefficients indicate that all program areas earn less than T & I. Only the Distributive area had a significantly different regression coefficient.

Cooperative Training. The regression coefficient for cooperative training revealed that students who had cooperative training in high school did not have significantly higher earnings than those students who were not in cooperative training. The sample showed 53 percent of the students had been involved in some form of cooperative training.

Part-time Job. Students who reported that they had a part-time job while in high school earned $ .11 per hour less than those who did not have part-time jobs. This variable was not significant. The hypothesis that those students who had part-time jobs would earn more than those who did not have part-time jobs was not accepted.

Additional Training. The analysis did not support the premise that additional training after high school influences earnings. Eighteen percent of the sample had additional training.

Satisfied with Vocational Training. Students were asked if they were satisfied with their vocational training. The ones who reported they were earned $ .19 per hour more than those who were not satisfied with their vocational training. However, this figure was not significant. The hypothesis that this variable influences earnings of vocational graduates was not accepted.

Year of Graduation. The 1972 graduates earned significantly higher ($ .20 per hour) salaries than did the 1973 graduates. This was significant.

Job Related Variables

A group of job related variables were identified and hypothesized to influence the earnings of vocational graduates. Table 10 presents a summary of these variables.

Like-Dislike Present Job. Each graduate was asked to indicate whether they liked or disliked their present job. Individuals who indicated a high liking for the job earned $ .22 per hour more than those who disliked their present job. This represented a significant difference. Those who expressed a moderate liking for their present job earned $ .08 per hour more than those who disliked their present job. This variable was not significant. The hypothesis that an individual's perception of like or dislike of a job would influence his earnings was held as tenable when a high like was examined.

Size of City Where Employed. The size of the city where the vocational graduates were employed did not provide evidence relative to the earnings of vocational graduates. The results on Table 11 show no significant relationship in present earnings and size of city.

No. of People Employed. It was hypothesized that the size of the business, in number of employees, would have an effect on earnings. The regression results did not show that any relationship exists. This hypothesis was rejected.

Table 10. Regression Results of Selected Variables on Present Earnings of 1972 and 1973 Vocational Graduates of Indiana Public Schools

Variable	$\bar{X}$	b	s	t
Like Present Job				
Highly like	46%	.22	.11	2.00*
Moderately like	26%	.08	.12	.67
Indifferent	9%	-.05	.15	-.33
Dislike Present Job		———	———	———
Size of City Where Employed	42,900	.00	.00	.00
No. People Employed Place Work	103	.00	.00	.00
Labor Union	22%	.70	.10	7.00**
Migration	21%	-.00	.00	-.00
Number of Full-Time Jobs				
1	58%	———	———	———
2	31%	-.10	.08	-1.25
3-5	9%	-.03	.14	- .21
Months Before First Full-Time Job	2.5	-.030	.014	-2.14*
Sought Full-Time Job Upon Graduation	90%	-.13	.15	- .87

N = 437
* Significant at .05 level
** Significant at .01 level
b = Regression Coefficient
s = Standard Error Regression Coefficient
t = Computed t value

Multiple Correlation = .62
R square = .38
F = 8.92
Constant = 2.12
$\bar{X}$ = Mean (Expressed as percentages except size of city and number of people employed in place of work and months before first job which are averages.

Labor Union. Each graduate was asked if his present job required him to join a labor union. Twenty-two percent of the sample answered affirmatively to this question. A person who reported that he was required to join a labor union earned $ .70 more per hour than those who were not labor union members. This variable was found to be highly significant. The hypothesis that labor union membership influences earnings proved acceptable.

Migration. It was hypothesized that the vocational graduates would migrate for higher earnings potential. The results of this analysis did not provide evidence to support this hypothesis. There was virtually no relationship between the distance between vocational training and place of employment. Either the potential was not realized or did not exist.

Number of Full-Time Jobs. It was hypothesized that the vocational graduate would change jobs for higher earnings. This hypothesis was not supported. A person who held two full-time jobs earned $ .10 per hour more than persons who held only one full-time job. This was not significant.

Months Before First Full-Time Job. Each graduate was asked to indicate the number of months before he took his first full-time job. The hypothesis being that a negative relationship would exist between this variable and earnings. This hypothesis was accepted. It appears that the longer a student looks for a job the more likely he is to discount earnings and become concerned with employment. Also, there may be some negative feelings being reflected in the prospective employers relative to these individuals.

Sought Full-Time Job Upon Graduation. Each graduate was asked if he sought a full-time job upon graduation. This variable was not significant. The graduates who answered affirmatively to this question (90%) earned $ .13 per hour less than those who did not seek a full-time job upon graduation.

Summary

The variables analyzed in this segment of the study explain 38% of the variance. The socio-economic variables that were analyzed contained two significant variables: (1) Sex and (2) Marital Status. Based on the results of the analysis, it appears that individuals who were married and individuals who were males earned significantly more than individuals who were non-married and individuals who were females.

The educational level and employment status of the parents had little influence on earnings. In like manner, persons who reported they had physical handicaps did not have earnings significantly different from the persons without physical handicaps.

Only one program area reported significantly different earnings. The Distributive Education graduates earned significantly less than T & I graduates. Although all the other program areas reported earnings less than the T & I area, they were not significant.

Graduates who had been involved in high school cooperative training or a part-time job while in high school did not have significantly different earnings from graduates who did not have cooperative training or part-time jobs. In like manner, graduates who had obtained additional training did not have significantly different earnings. Also, graduates who were satisfied with their vocational training did not earn significantly more than students who were not satisfied.

As might be expected, graduates in 1972 did earn significantly more than 1973 graduates. Graduates who highly like their present jobs earned significantly more than graduates who dislike their present job. Graduates who were required to join labor unions earned significantly more than non-labor union graduates. This result was expected and documented in previous studies.

The other variable that provided some degree of significance was the length of time before a job was secured. A negative regression coefficient implied that the longer it took to secure a job the more one is likely to discount earnings in lieu of a job. Other variables--size of city where employed, number of people employed in the place of employment, migration, and number of jobs--provide little in terms of influence on earnings.

FOLLOW-UP SURVEY OF FORMER VOCATIONAL STUDENTS

Your cooperation in completing this survey is greatly appreciated. Please answer each question as accurately and completely as possible. The questions on this form refer to your high school vocational classes which show that you took _____ _____ ___ _____.

1. Since you left this vocational program, did you seek full-time employment?

   ___ Yes ___ No

2. If you did not seek full-time employment when you left this vocational program, indicate the reason.

   Check only one line
   ___ Expected to enter another school
   ___ Housewife or about to be married
   ___ Physical or other handicap
   ___ Not interested in a job
   ___ Expected to enter the military service
   ___ Only wanted to work part-time (less than 30 hours per week)
   ___ Other (specify) _____

3. Did you seek part-time employment (less than 30 hours per week) when you left this vocational program?

   ___ Yes ___ No

4. If you sought part-time employment instead of full-time employment, when you left this vocational program, indicate the reason.

4. Continued

   Check only one line
   ___ Expected to enter another school
   ___ Housewife or about to be married
   ___ Physical or other handicap
   ___ Not interested in a full-time job
   ___ Expected to enter the military service
   ___ Unable to find a full-time job
   ___ Other (specify) _____

5. How many full-time jobs (30 or more hours per week) have you held since you left this vocational program?

   ___ None
   ___ 1 full-time job
   ___ 2 full-time jobs
   ___ 3 to 5 full-time jobs
   ___ 6 or more full-time jobs

NOTE: IF YOUR ANSWER TO QUESTION 5 WAS NONE, SKIP TO QUESTION 23.

6. How many months after graduating was it before you took your first full-time job?

   ___ 0-2 ___ 6-8 ___ 12 or over
   ___ 3-5 ___ 9-11

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The study sought to analyze the earnings of 1972 and 1973 vocational graduates of Indiana secondary schools. Three earnings periods were studied: (1) initial earnings, (2) six months earnings, and (3) present earnings.

A set of variables hypothesized to influence those earnings were examined using multiple regression analysis. The variables were classified into three categories: (1) socio-economic variables, (2) vocational training variables, and (3) job related variables.

A multiple regression analysis was generated for each earning period using the three categories of variables. The following section presents a total comparison of these regression analyses.

Socio-Economic Variables

The first socio-economic variable examined was the male-female variable. In all cases, initial, six months, and present, males earned significantly more than females, starting with $.51 per hour more in initial phases but increasing to $.71 more per hour in the final phases. Table 11 provides a summary of socio-economic variables. Clearly, males earn more initially, and the longer they are in the labor market, the more the earnings variation widens.

Table 11. Summary of Regression Coefficients for Three Earnings Periods of 1972 and 1973 Indiana High School Vocational Graduates

Variable	Initial	Six Months	Present
Males	.51**	.69**	.71**
Females	----	----	----
Father's Educational Level	.01	-.014	-.01
Mother's Educational Level	-.003	.03*	.017
Married	.08	.22	.20*
Not Married	----	----	----
Father's Employment			
Employed Full-Time	.02	.03	-.04
Not Employed Full-Time	----	----	----
Mother's Employment			
Employed Full-Time	-.015	.02	.04
Not Employed Full-Time	----	----	----
Physical Handicaps	.20	-.31	.09

* - Significant at .05 level
** - Significant at .01 level

The educational level of the parents provided little in explaining the differentials in earnings of the vocational graduates. However, at the six months level, the educational level of the mother was significant.

Marital status was analyzed and Table 11 reveals that married graduates earned more per hour than non-married graduates. The $.20 per hour difference realized for present earnings was significant. Therefore, married graduates in this study over a period of time in the labor market tend to earn more than the non-married graduates.

The employment levels of the father and mother proved to have very little influence on the earnings of the graduates. This result held constant in all earning periods reported.

Only 2 percent of the total responses reported physical handicaps, and those students who reported they were physically handicapped did not earn significantly more or less.

Vocational Training Variables

There were six vocational training variables examined in terms of their influence with earnings. Table 12 presents the results of the regression analysis for the vocational training variables.

Table 12. Summary of Regression Coefficients for Three Earnings Periods of 1972 and 1973 Indiana High School Vocational Graduates

Variable	Initial	Six Months	Present
Vocational Program			
Agriculture	.09	.32*	-.006
Business Education	-.26*	-.06	-.157
Distributive Education	-.165	-.21	-.36**
Health Occupations	-.42	-.51*	-.35
Home Economics	-.18	-.06	-.36
Trade & Industrial	----	----	----
High School Co-op	----	----	.162
Part-Time Job	-.03	-.11	-.116
Additional Training	.05	.19	.08
Satisfied with Vocational Training	.134	.004	.19
Year of Graduation			
1972	-.09	-.09	.20*
1973	----	----	----

* - Significant at .05 level
** - Significant at .01 level

The first variables examined were the vocational program areas that the graduates had completed leading to their employment. The T & I variable was held constant and all other program areas are interpreted as deviations from the T & I area. The Business Education graduates earned significantly less ($.20 per hour less) than the T & I people when initial earnings were analyzed. When earnings six months after graduation were analyzed, the Agriculture graduates earned significantly more and the Health Occupations graduates significantly less than the T & I. The picture changes again at the present earnings level, as only the Distributive Education graduates earned less than the T & I. The conclusions drawn from this variable appear to be very confusing. There is no clear cut pattern established in terms of program areas and their relationship among each other in terms of earnings.

Enrollment in a high school cooperative program was analyzed and when compared with present earnings it appeared that no relationship to earnings exists.

In all three cases; initial, six months, and present earnings,the analysis revealed that graduates who held part-time jobs other than cooperative programs while they were in school reported earnings which were not significantly different from those graduates who did not have part-time jobs.

The next variable examined, additional training, was not found to provide significant influence with earnings. Those who had additional training after school did not make significantly more than those who did not have additional training. Although the regression coefficients were positive in nature, no significant difference existed.

The regression coefficients for vocational training satisfaction did not reveal any significant differences. Those graduates who reported that they were satisfied with vocational training did not earn more than those who were not satisfied.

The last variable in this group was that of year of graduation. Two years were considered: 1972 and 1973. In initial earnings and at the six months level, the 1972 graduates earned less than the 1973 graduates. However, at the present earnings level, the 1972 graduates earned significantly more than the 1973 graduates. It appears that over a period of time the people who are in the labor market longer, i.e., the 1972 graduates, will have a significantly higher earnings level than more recent graduates.

Job Related Variables

This section presents the analysis of seven variables that are related to the job the student acquired. Table 13 presents the results of this phase of the analysis.

The regression anaylsis of present earnings revealed that those graduates who highly liked their present job earned significantly more than those who disliked their present job.

Each graduate was asked to respond to the relatedness of his job to his vocational training. The regression analysis in this variable did not reveal any significant results. Therefore, graduates who were working in related occupations did not earn more than those who were working in non-related occupations.

Table 13. Summary of Regression Coefficients for Three Earnings Periods of 1972 and 1973 Indiana High School Vocational Graduates

Variable	Initial	Six Months	Present
Like Present Job			
Highly like	----	----	2.00**
Moderately like	----	----	.67
Indifferent	----	----	-.33
Dislike Present Job	----	----	----
Job Relatedness			
Employed in Occupation Trained	-.02	.13	----
Employed in Related Occupation	.03	.13	----
Non-Related	----	----	----
Size of City Where Employed	----	----	.00
No. People Employed Place Work	----	----	.00
Labor Union	----	----	.70*
Migration	----	----	-.00
Number of Full-Time Jobs			
1	----	----	----
2	-.28**	.04**	-.10
3-5	-.37**	-.07	-.03
Months Before First Full-Time Job	.004	-.03	-.030*
Sought Full-Time Job Upon Graduation	-.08	.04	-.13

* - Significant at .05 level
** - Significant at .01 level

Two variables, the size of city where employed and number of people employed at place of work, provided no explanation in regard to earnings differentials.

Being a member of a labor union was a highly significant factor in explaining earnings differentials. Graduates who reported that they were members of a labor union earned $.70 per hour more than non labor union members.

The migration of the graduates (how far from their vocational training to present place of employment) was not a significant factor in explaining earnings.

The number of full-time jobs that the vocational graduates had held after completion of vocational training was analyzed and initially those graduates who held two or 3 to 5 full-time jobs earned significantly less than those who had held one full-time job. When six months earnings were analyzed, those who had held two full-time jobs earned significantly less. However, at the present earnings level, there appeared to be no significant difference in the number of jobs the student held and influence on earnings.

The number of months it took a graduate to acquire a job was regressed on earnings and no significance was found at the initial and six months levels. However, when present earnings were analyzed the regression results revealed that those graduates who took longer to enter the labor market earned less.

Graduates were asked if they sought a full-time job upon graduation. When one examines the regression coefficients of this variable it appears that those who sought a full-time job earned less than those who did not, but this was not significant.

The following identifies the variables that contribute most to the variance of the regression models:

1. The socio-economic variables that were analyzed contained two significant variables: (1) Sex and (2) Marital status. Based on the results of the analysis it appears that individuals who were married and individuals who were males earned significantly more than individuals who were non-married and individuals who were females.

2. The educational level and employment status of the parents had little influence on earnings. The mother's educational level did prove significant at the six months period.

3. Persons who reported they had physical handicaps did not have earnings significantly different from the persons without physical handicaps.

4. There were no clear cut patterns established in reference to vocational program areas.

5. Graduates who had been involved in high school cooperative training or a part-time job while in high school did not have significantly different earnings from graduates who did not have cooperative training or part-time jobs.

6. Graduates who had obtained additional training did not have significantly different earnings.

7. Graduates who were satisfied with their vocational training did not earn significantly more than students who were not satisfied.

8. The 1972 graduates earned significantly more than the 1973 graduates at the present earnings level.

9. Graduates who highly liked their present jobs earned significantly more than graduates who disliked their present jobs.

10. Graduates who were required to join labor unions earned significantly more than non-labor union graduates. This result was expected and documented in previous studies.

11. The other variable that provided some degree of significance was the length of time before a job was secured. A negative regression coefficient implied that the longer it took to secure a job the less the earnings. This could be expected as the longer it took to secure a job the more one is likely to discount earnings in lieu of a job.

12. Other variables: size of city where employed, number of people employed in place of employment, migration, and number of jobs, provide little in terms of influence on earnings.

Conclusions

Based on the results of this study, the following conclusions seem warranted:

1. Variables not directly related to vocational training such as sex and marital status, year of graduation, labor union membership, length of time before entering labor market, have a greater influence on earnings than variables directly related to vocational training.

2. Variables such as satisfaction with vocational training, the type of vocational program area completed, experience in a vocational cooperative program, provided little in explaining earnings differentials.

3. The variables hypothesized to provide an index of socio-economic status were not a factor. Either the influence did not exist or these variables were not proper indices of socio-economic status.

4. The six vocational program areas studied provided a confusing pattern of significant results. Therefore, it must be concluded that the type of vocational program area a student completed is not a significant factor in explaining earnings when time series data is analyzed.

5. Persons who highly like their present jobs earn significantly more than persons who dislike their present job.

6. Labor unions are directly related to increased earnings.

Recommendations

1. Data on comparison groups, such as non-vocational graduates, should be similarly analyzed and compared in order to isolate the true relationship to vocational training.

2. Future studies of this nature should include race and IQ as a part of the regression model. Considerable difficulty was experienced in obtaining data relative to these variables. Other studies have documented the contribution that these variables make to the regression model.

3. Future studies should obtain data on longer periods of work than this study. The amount of variance explained increased with time, leading the investigator to believe that the variables identified in this model will continue to explain more variance over time.

4. Data should be collected over longer periods of time to reduce the effects that economic fluctuations may have on certain occupation areas.

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APPENDIX A

LIST OF COOPERATING SCHOOLS

Laporte High School

Lowell Senior High School

Plymouth High School

Washington High School

Francis Joseph Reitz High School

Isaac C. Elston High School

Benton Central Jr/Sr High School

Thomas Carr Howe High School

Jefferson Senior High School

Prairie Heights Jr/Sr High School

Goshen High School

Columbus North High School

John Adams High School

Princeton Community High School

Tipton High School

Anderson High School

Crispus Attucks High School

LaSalle High School

Hammond Technical Vocational High School

Indiana State Lab School

Plainfield Jr/Sr High School

Franklin Central High School

Crothersville High School

Kokomo High School

Noblesville High School

APPENDIX B

LETTERS AND RESEARCH INSTRUMENT

PURDUE UNIVERSITY
AGRICULTURAL EDUCATION
BUILDING G, SCC
WEST LAFAYETTE, INDIANA 47907

Henry N. Cox
President of Indiana Public Schools Superintendents Association
14 South Jefferson Street
Danville, Indiana 46122

To: Superintendents, Indiana Secondary High Schools
From: Henry N. Cox
Subject: Research Proposal
Date:

Dr. Bill Richardson, Dr. Joan McFadden, and graduate students Phyllis Tombaugh and Jerry Peters of Purdue University, in cooperation with the Indiana State Department of Public Instruction, are conducting a research project entitled: An Identification of Employment Patterns of Vocational Graduates of Indiana Secondary Schools. The researchers have asked for our assistance with a portion of the study related to Indiana Secondary Schools.

After reading a summary of the proposal it appears to me that the data to be gathered will be of significant benefit to Indiana Secondary Schools in future program planning. It will take some time to provide the necessary information but the value of the study should make the time well spent.

Your assistance with the project will be appreciated.

Henry N. Cox
President of IPSSA

PURDUE UNIVERSITY
AGRICULTURAL EDUCATION
BUILDING G, SCC
WEST LAFAYETTE, INDIANA 47907

Dear :

The State Department of Public Instruction in cooperation with Purdue University is conducting a study entitled: An Identification of Employment Patterns of Vocational Graduates of Indiana Secondary Schools. This study is directed by two members of the Vocational Education Section at Purdue, Dr. Bill Richardson and Dr. Joan McFadden. The information received from this study will be helpful to the state and to the schools involved in the study.

The study has been reviewed and endorsed by Henry N. Cox, Superintendent of Schools at Danville and President of the Indiana Public Schools Superintendents Association. His endorsement of the project is expressed in the enclosed letter.

Enclosed is a brief summary of the study. We would appreciate a few minutes of your time in reading and reviewing this summary. After you have had a chance to read the summary, we will contact you to see if you have any questions about the study and when we might set up an appointment to discuss the project further. This study is not a doctoral dissertation.

Thirty Indiana High Schools were randomly selected for study. The following school in your district was selected:

We hope you will consider participating in this study.

Sincerely,

Jerry Peters
Graduate Assistant
Agricultural Education Section

JP/jh

Enclosure

PURDUE UNIVERSITY
AGRICULTURAL EDUCATION
BUILDING G, SCC
WEST LAFAYETTE, INDIANA 47907

YOUR HELP IS NEEDED!

A study is being conducted by the State Department of Public Instruction for Indiana in cooperation with Purdue University. The purpose of the study is to follow-up 1972 and 1973 graduates. Your school officials have reviewed and approved this project and urge you to participate.

Enclosed you will find a questionnaire. Some of the questions may seem quite personal, but the information is needed for the study. You can be assured that all the answers will be kept confidential. Only summaries of groups will be reported. Please fill out the questionnaire and send it back in the enclosed self-addressed envelope by

Read the questionnaire carefully so your answers will be complete and accurate. It will take approximately 15 minutes of your time. Then return the questionnaire in the stamped envelope immediately so that your school will be represented in this important study.

Thank you for your cooperation, and good luck with your future plans.

Sincerely,

Jerry Peters
Graduate Assistant
Agricultural Education Section

JP/jh

Enclosure

7. Briefly describe your first full-time job when you left this vocational program: _____

_____

8. How closely did your first full-time job (30 or more hours per week) after leaving this vocational program relate to the training you received?

Check only one line
___ I was employed in the occupation for which I was trained by this vocational program
___ I was employed in a related occupation
___ I was employed in a completely different occupation

9. Did this vocational training program adequately prepare you for your first full-time job?

___ Yes ___ No

10. Do you have another skill that you use for a part-time job besides the full-time job?

___ Yes ___ No

11. What were your beginning wages on your first full-time job after leaving this vocational program?

Check or provide information needed
___ $1.50 to $2.49 per hour
___ $2.50 to $3.49 per hour
___ $3.50 to $4.49 per hour
___ More than $4.50 per hour

If you were paid other than on an hourly basis, estimate your gross earnings in one of the categories below:

Monthly:___ Weekly:___ Other:___

NOTE: IF YOU WERE NOT EMPLOYED THE FIRST SIX MONTHS AFTER GRADUATION, SKIP TO QUESTION 15.

12. Briefly describe your job six months after you left this vocational program:

_____

_____

Did this job require you to join a union? ___ Yes ___ No

13. How closely did your job, six months after leaving the vocational program, relate to the training you received?

Check only one line
___ I was employed in the occupation for which I was trained by this vocational program
___ I was employed in a related occupation
___ I was employed in a completely different occupation

14. What were your wages on your job six months after leaving this vocational training?

Check or provide information needed
___ $1.50 to $2.49 per hour
___ $2.50 to $3.49 per hour
___ $3.50 to $4.49 per hour
___ More than $4.50 per hour

If you were paid other than on an hourly basis, estimate your gross earnings in one of the categories below:

Monthly:___ Weekly:___ Other:___

NOTE: IF YOU ARE A 1973 GRADUATE, SKIP TO QUESTION 18 AND CONTINUE

15. Briefly describe your job one year after you left this vocational program:

_____

_____

Did this job require you to join a union? ___ Yes ___ No

16. How closely did your first full-time job (30 or more hours per week) one year after leaving this vocational program relate to the training you received?

Check only one line

___ I was employed in the occupation for which I was trained by this vocational program

___ I was employed in a related occupation

___ I was employed in a completely different occupation

17. Did this vocational training program adequately prepare you for your first full-time job one year after leaving this training?

___ Yes ___ No

18. Indicate below the size of the city in which you are employed:

___ 0-1,000
___ 1,000-2,499
___ 2,500-4,999
___ 5,000-10,000
___ 10,000-25,000
___ 25,000-50,000
___ 50,000-100,000
___ Over 100,000

19. If you are presently working, briefly describe your job: _____

_____

_____

Does this job require you to join a union? ___ Yes ___ No

20. What wages are you presently earning?

Check or provide information needed

___ $1.50 to $2.49 per hour
___ $2.50 to $3.49 per hour
___ $3.50 to $4.49 per hour
___ More than $4.50 per hour

If you are paid other than on an hourly basis, estimate your gross earnings in one of the categories below:

Monthly:___ Weekly:___ Other:___

21. How many people are employed at your present place of employment?

___ 0-5
___ 6-10
___ 11-15
___ 16-20
___ 25-50
___ (If over 50, give estimated number)

22. Is your present job located over 10 miles from the high school where you received your vocational training?

___ Yes ___ No

If YES, check one of the lines below

___ 10-20 miles
___ 20-30 miles
___ 30-40 miles
___ 40-50 miles
___ If over 50 miles, give est. milage

23. Were you employed in a co-op job while in high school?

___ Yes ___ No

If YES, please describe the job you held: _____

_____

24. Did you have a part-time job while in high school other than your co-op job?

___ Yes ___ No

25. Were you satisfied with the vocational training you received in the program in which you were trained?

___ Yes ___ No

26. Since graduating from high school, have you been enrolled in a vocational program or other job related training program?

___ Yes ___ No
If YES, please specify: _____

_____

27. Do you have any physical handicaps or health conditions that keep you from taking certain jobs in the vocational area in which you were trained?

___ Yes ___ No

28. Which of the following best describe your feelings about your likes of your present job?

___ Highly like
___ Only moderately like
___ Indifferent
___ Only moderately dislike
___ Highly dislike

29. Briefly describe the occupation of the head of your home while you were in high school: _____

_____

_____

30. Are you:

___ Single ___ Divorced or Separated
___ Married ___ Widowed

31. Are your parents and/or guardians employed?

Please check the lines that are appropriate:

	Father	Mother	Guardian
Full-time (30 hours or more per week)	_____	_____	_____
Part-time (less than 30 hours per week)	_____	_____	_____
Not employed	_____	_____	_____

32. Circle the number of years of schooling completed by your father, mother and/or guardian.

Parent or Guardian	Years of Schooling Completed			
	Grade School	High School	College	Grad. School
Father	5 6 7 8	9 10 11 12	13 14 15 16	17+
Mother	5 6 7 8	9 10 11 12	13 14 15 16	17+
Guardian	5 6 7 8	9 10 11 12	13 14 15 16	17+

APPENDIX C

LIST OF ADVISORY COMMITTEE

and

PROJECT CONSULTANT

EVALUATION COMMITTEE

Mr. Rod McKinney
Vocational Director for Benton Community School Corporation
Box 512
Fowler, Indiana 47944

Mr. V. A. Simmons
Superintendent of Benton Community School Corporation
Box 512
Fowler, Indiana 47944

Mr. Orville Scribner
Systems Analyst for Indiana Public Instruction
State Department of Public Instruction
Division of Vocational Education
225 State House
Indianapolis, Indiana 46204

Dr. Robert Kane
Professor
Math Education
South Campus Courts

Dr. Betty Sawyers
Assistant Professor
Home Economics Education
South Campus Courts

CONSULTANT

Dr. Donald Osburn
Professor
Department of Agricultural Economics
University of Missouri
Columbia, Missouri

APPENDIX D

ANALYSIS OF NON-RESPONDENTS

Analysis of Non-Respondents

The sample in this study consists of 680 cases, or a 68 percent usable return rate. A five percent random sample was taken from the non-respondents. A comparison of the respondents and non-respondents was made on each variable studied. The small "n" for the non-respondents made it difficult to do a rigorous statistical analysis. However, percentages and averages are reported for each variable so that the reader can determine the degree of similarity and difference that exists between the respondents and the non-respondents. (See Table 14)

Table 14. Comparison of Respondents and 5% Random Sample of Non-Respondents

Variables	Respondents (N=680)	Non-Respondents (N=17)
Socio-Economic Variables		
Males	45%	53%
Females	55%	47%
Father's Educational Level	10.4 Yrs.	10.6 Yrs.
Mother's Educational Level	10.7 Yrs.	11.0 Yrs.
Married	20%	29%
Not Married	69%	59%
Father's Employment Employed Full-Time	85%	82%
Mother's Employment Employed Full-Time	41%	47%
Physical Handicaps	2%	0%
Vocational Program		
Agriculture	7%	6%
Business Education	36%	23%
Distributive Education	19%	12%
Health Occupations	2%	6%
Home Economics	4%	6%
Trade and Industrial	30%	47%
High School Co-Op Program	49%	35%
Part-Time Job	33%	29%
Additional Training	21%	12%
Satisfied with Vocational Training	81%	76%

Table 14 illustrates that there were some differences between the two groups. The magnitude of the differences is, of course, one of interpretation. The respondents sample consists of 45 percent males and 55 percent females, while the non-respondents were 53 percent males and 47 percent females. Clearly, the non-respondents sample has a larger proportion of males than the respondents sample. The father's educational level was virtually the same.

The employment levels of the father and mother were basically the same for both groups. Eighty-five percent of the respondents' fathers were employed and 82 percent of the non-respondents' fathers. However, a little larger proportion of the non-respondents' mothers were employed when compared to the employment of the respondents' mothers.

Two percent of the total sample were physically handicapped, but none of the five percent random sample respondents were.

The five percent random sample of non-respondents contained a much smaller proportion of students who were employed in co-op programs while in school. Also, a smaller percentage held part-time jobs. In like manner, the non-respondents sought less additional training.

The responses relative to satisfaction with vocational training were quite similar. Eighty-one percent of the respondents said they were satisfied, and 76 percent of the non-respondents said they were satisfied.

The year of graduation of the non-respondents was, as one might expect, a larger percentage of 1972 graduates.

When asked whether they sought full-time employment or not, both respondents' and non-respondents' answers were virtually the same, as seventy-six percent of the non-respondents and 74 percent of the respondents reported that they sought full-time employment. The respondents and non-respondents reported similar responses relative to the number of full-time jobs held. Forty-seven percent of the respondents had held only one full-time job compared to 35 percent for the non-respondents. A larger proportion of the non-respondents had held two or more jobs.

The responses to whether Vocational Education adequately prepared them for their first job reveal that 45 percent of the respondents and 41 percent of the non-respondents answered positively. The respondents reported an average earnings of $1.95 per hour and the non-respondents $2.05 per hour for their initial job.

The summary of their wages at six months yields an interesting difference. The respondents reported that their earnings had actually dropped at six months, where as the non-respondents reported an increase to $2.33 per hour.

A higher proportion of the respondents said they highly liked their present job. However, a higher proportion of the non-respondents said they moderately liked their present job. Sixty-one percent of the respondents said they either highly liked or moderately liked their jobs and 71 percent of the non-respondents responded thusly.

It appeared that the non-respondents worked in larger businesses than the respondents. A large percentage of people of the non-respondents were members of labor unions, which could be expected due to the fact that they worked in

Table 14 (cont.) Comparison of Respondents and 5% Random Sample of Non-Respondents

Variable	Respondents (N=680)	Non-Respondents (N=17)
Year of Graduation		
1972	49%	59%
1973	51%	41%
Sought Full-Time Employment	74%	76%
Number Full-Time Jobs		
0	18%	23%
1	47%	35%
2	23%	29%
3-5	8%	12%
Months Before Sought Full-Time Employment	.82 Months	2.01 Months
Job Relatedness of 1st Job		
High	27.5%	24%
Moderate	19%	35%
Low	32%	41%
Voc. Edu. Adq. Prepare	45%	41%
Beginning Wages	1.95	2.05
Job Relatedness 6 Months		
High	22%	24%
Moderate	16%	12%
Low	26%	41%
Wages at Six Months	1.66	2.33
Like Present Job		
High Like	39%	24%
Moderately Like	22%	47%
Indifferent	9%	6%
Dislike Present Job		
Size of City Where Employed	33,674	37,970
No. People Employed Place Work	69	185
Labor Union	15%	35%
Migration	14.7 Miles	4 Miles

larger businesses, and their earnings were somewhat higher. The distance from where they were trained to where they were employed posed an interesting difference. The respondents were approximately 15 miles from where they were trained. However, the non-respondents were only 4 miles.

In summary, when one looks over the respondents and non-respondents it is quite clear that there are differences and similarities in the two groups. The question poses itself that if there are differences, to what extent will these differences detract from the report dealing with the respondents. The investigator contends that there are not enough major differences to destroy the validity of the report as presented in previous pages.